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Eingang
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Application No.	Ref.	Date
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Applicant: FUJIKURA LTD.		

Communication pursuant to Article 96(2) EPC

The examination of the above-identified application has revealed that it does not meet the requirements of the European Patent Convention for the reasons enclosed herewith. If the deficiencies indicated are not rectified the application may be refused pursuant to Article 97(1) EPC.

You are invited to file your observations and insofar as the deficiencies are such as to be rectifiable, to correct the indicated deficiencies within a period

of 4 months

from the notification of this communication, this period being computed in accordance with Rules 78(2) and 83(2) and (4) EPC.

One set of amendments to the description, claims and drawings is to be filed within the said period on separate sheets (Rule 36(1) EPC).

Failure to comply with this invitation in due time will result in the application being deemed to be withdrawn (Article 96(3) EPC).

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Frisch, A
Primary Examiner
for the Examining Division

Enclosure(s): 6 pages reasons (Form 2906)

Registered Letter
EPO Form 2001 07.02CSX

R RK 52 057 367 8DE 110

The examination is being carried out on the **following application documents**:

Description, Pages
1-56 as originally filed

Claims, Numbers
1-20 filed with entry into the regional phase before the EPO

Drawings, Sheets
1/10-10/10 as originally filed

The following documents (D) are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

D1: EP-A-1 271 196 (FUJIKURA LTD) 2. January 2003
D2: PATENT ABSTRACTS OF JAPAN vol. 1998, no. 06, 30. April 1998 -& JP 10 031120 A (SUMITOMO ELECTRIC IND LTD), 3. February 1998
D3: PATENT ABSTRACTS OF JAPAN vol. 1998, no. 10, 31. August 1998 -& JP 10 123342 A (SUMITOMO ELECTRIC IND LTD), 15. May 1998
D4: PATENT ABSTRACTS OF JAPAN vol. 1996, no. 06, 28. June 1996 -& JP 08 036123 A (SUMITOMO ELECTRIC IND LTD), 6. February 1996
D5: PATENT ABSTRACTS OF JAPAN vol. 018, no. 067 (P-1686), 3. February 1994 (1994-02-03) -& JP 05 281431 A (FUJIKURA LTD), 29. October 1993

1.1 The application claims priority from Japanese patent application 2002-069077 of 13.03.2002 (labelled priority 1 in the following), and Japanese patent application 2003 -057013 of 04.03.2003 (labelled priority 2), both of which relate to dispersion compensating fibre and modules containing such fibres.
However, it is considered that the subject-matter of claims 1 - 4, 11, 12, 14, and 15 is not disclosed in priority 1 in that priority 1 does not appear to relate to the adhesive properties of the fibre coating and their function in a dispersion compensating fibre module.

Priority 1 therefore appears to be not validly claimed for the subject-matter of claims 1 - 4, 11, 12, 14, and 15 such that the only valid priority of these claims is priority 2.

1.2 Document D1 published before the priority date of priority 2 therefore is to be considered as prior art in the sense of Article 54(1) and (2) EPC for claims 1 - 4, 11, 12, 14, and 15.

2. The application does not fulfil the requirements of Article 84 EPC. The reasons for this objection are:

2.1 Three independent claims (claims 1, 4 and 5) in the same category and with similar and overlapping scope render the nature of the invention unclear.

2.2 It furthermore appears that it is tried in claim 1 to define the dispersion compensating fibre by mere desiderata for its performance instead of defining the structural features of the fibre necessary to achieve these performances.

Such a definition is only allowable under the conditions elaborated in the Guidelines C-III, 4.7. In this instance, however, such a formulation is not allowable because it appears possible to define the subject-matter in more concrete terms, namely by defining the refractive index profile of the optical fibre (as tried in claims 4 and 5).

Similar objections apply correspondingly to claims 6, 7, 8, 9, 11, 12, 14, 17, 18, 19, and 20.

2.3 Not withstanding the above objection claim 1 additionally is unclear in view of the specifications of the performance desiderata:

The application only discloses nine example fibres (examples 3, 4, 5, 6, 13, 33, 34, 41, and 42) out of forty-seven example fibres for which the chromatic dispersion could be -120 ps/nm/km or lower in the range from 1,53 µm to 1,63 µm. Example fibre 1,2, 7 - 12, 14 - 32, 35 - 40, and 43 - 47 are thus not covered by the

desiderata combination of claim 1. Claim 1 is thus unclear in view of the parts of the description relating to these embodiments.

2.4 Not withstanding the above objections, it is also considered that claim 1 contains a further clarity problem in that it is not clear from claim 1 to which surface of the coating the adhesive property defined applies: to the inner surface contacting the fibre, or to the outer surface of the coating; it is, however, understood from the description that the adhesive property of the outer coating surface is meant.

2.5 Claim 5 does not define a ring section; however, a ratio of the intermediate core section radius to a an outer ring core section is defined in claim 5. Claim 5 is thus unclear as such. In the following, it will be assumed that the term relating to this ratio was erroneously introduced in claim 5 and that claim 5 was intended to define the fibre embodiments with an index profile according to figures 1a and 1b.

2.6 It is neither clear from claim 4 nor from claim 5 which core radius is meant to be in the range of 4 µm to 8 µm: the centre core, the intermediate core, or the ring core section. Claims 4 and 5 are thus unclear in this respect. However, it is also not unambiguously clear from the description which radius is meant / could be meant.

Claims 4 and 5 are therefore considered as unclear to such an extent that an examination of their subject-matter with respect to novelty and inventive step appears impossible at the time being.

3.1 The application does not fulfil the requirements of Article 52(1) EPC because the subject-matter of claims 1 and 2, as far as they are understood and construed, does not involve an inventive step in the sense of Article 56 EPC:

Document D1 discloses a dispersion compensating fibre which, when operated in a

wavelength range from 1,53 µm to 1,63 µm exhibits the following performance: a bending loss of 5 dB/m or lower with 20 mm bending diameter, an absolute value of the chromatic dispersion per unit loss of 200 ps/nm/km dB or higher, a cut-off wavelength for the used length and under the use conditions of 1,53 µm or lower, and adhesive property of the (outer) surface of the coating resin of 1 g/mm or lower.

The fibres described in D1 differs from the fibre of claim 1 in that the dispersion is not -120 ps/nm/km or lower, in that an outer diameter of the cladding does not fall into the range of 80 µm to 100 µm, and in that an outer diameter for a coating does not fall in the range of 160 µm to 200 µm.

However, it is already mentioned in D1 that the outer cladding diameters and outer coating diameters falling into these ranges can alternatively be provided and that the dispersion of fibre with a similar profile can easily be adjusted to be below -120 ps/nm/km in the wavelength range of 1,53 µm to 1,63 µm (see claim 3 and table 3).

It is therefore considered as obvious for the skilled person to apply the general teaching of D1 to one or several of the embodiments disclosed therein thereby arriving at the subject-matter of claims 1 and 2.

3.2 Dependent claim 3, as far as it is understood and construed, does not appear to contain any additional features which, in combination with the features of any claim to which it refers, meet the requirements of the EPC with respect to inventive step:

It is already indicated in D1 that the coating layer can consist of a several coating layers comprising one or more primary coating layer and a secondary outer coating layer with a certain adhesive property (see e.g. claim 9). Such double or triple coating layers are well known in the field of optical fibres and protect the fibre from side pressure thereby reducing (micro)bending losses and polarisation mode

dispersion (see D2, D3, D4, and D5).

However, in order to be able to perform these functions the elastic moduli and the thicknesses of these coating layers must be chosen correctly: D2 (see figure 3, and claim 4) describes elastic moduli in the range of 0.15 kg/ mm^2 to 0.03 kg/mm^2 and 50kg/mm^2 to 100 kg/mm^2, respectively, and thicknesses in the range of 20 µm to 30 µm and 15 - 70 µm, respectively, D3 (see figure 3) describes an elastic modulus of 0.06 kg/mm^2 and 65 kg/mm^2 and a thicknesses of 20 µm, respectively, D4 describes elastic module in the range of 0.04 kg/mm^2 to 0.30 kg/mm^2, 0.05 kg/mm^2 to 0.2 kg/mm^2, or 0.07 kg/mm^2 to 0.15 kg/mm^2 and 50 kg/mm^2, respectively, and thicknesses in the range of 7 µm to 50 µm and 5 µm to 40 µm, respectively, whereas D5 describes elastic moduli in the range of 0.01 kg/mm^2 to 0.4 kg/mm^2 and 50 kg/mm^2 to 200kg/mm^2 and thicknesses in the range of 10 µm to 25 µm and 10 µm to 55 µm (see paragraph 8 and 10 of D5).

The values for the elastic moduli and the layer thickness ranges defined in claim 3 fall into the ranges known from prior art double coating layers such that it is considered that their specification in claim 3 does not involve an inventive step in the sense of Article 56 EPC (this applies in particular as there is apparently no special unexpected effect related to the values chosen in claim 3).

4. It is not at present apparent which part of the application could serve as a basis for a new, allowable claim. Should the applicant nevertheless regard some particular matter as patentable, an independent claim including that subject-matter should be filed taking into account the requirements of Rule 29(1) (a) and (b). The applicant should also indicate in his letter of reply the manner in which this subject-matter differs from the state of the art, and the significance of this difference in terms of inventive step (Art. 56 EPC). Any amendments should be clearly based on the application documents as filed, in order to meet the requirements of Art. 123(2) EPC.

In order to facilitate the examination of the conformity of the amended application with the requirements of Article 123(2) EPC, the applicant is requested to clearly identify the amendments carried out, irrespective of whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based.